

INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB2005/003422

A. CLASSIFICATION OF SUBJECT MATTER F04B47/08 F04B9/10 E21B43/12 E21B43/01		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) F04B E21B		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practical search terms used) EPO-Internal , WPI Data		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document with indication, where appropriate, of the relevant passages	Relevant to claim No
X	DATABASE WPI Section Ch, Week 198811 Derwent Publications Ltd., London, GB; Class H01, page 11, AN 1988-075714 XP002356100 NORDGREN A.: "under water pump for sea bed well 1" - & SE 8 602 652 L (AB ASEA-ATOM) 14 December 1987 (1987-12-14) abstract -----	1, 18, 19
Y	FR 2 710 946 A (INSTITUT FRANCAIS PETROLE) 14 April 1995 (1995-04-14) the whole document -----	1-32
Y	WO 90/08897 A (SINVENT AS) 9 August 1990 (1990-08-09) the whole document -----	1-32
- / - -		
<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C <input checked="" type="checkbox"/> Patent family members are listed in annex		
° Special categories of cited documents <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>¹A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>¹E¹ earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O¹" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> </div> <div style="width: 45%;"> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>¹X" document of particular relevance, the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance, the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&" document member of the same patent family</p> </div> </div>		
Date of the actual completion of the international search <div style="text-align: center;">25 November 2005</div>		Date of mailing of the international search report <div style="text-align: center;">27/01/2006</div>
Name and mailing address of the ISA European Patent Office, P B 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel (+31-70) 340-2040, Tx 31 651 epo nl, Fax (+31-70) 340-3016		Authorized officer <div style="text-align: center; font-size: 1.2em;">Ingelbrecht , P</div>

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4 848 471 A (BENCZE ET AL) 18 July 1989 (1989-07-18) the whole document -----	1
A	EP 0 568 742 A (COOPER INDUSTRIES INC) 10 November 1993 (1993-11-10) the whole document -----	1

Information on patent family members

Net/GB2005/003422

Form PCT/ISA/210 (patent family annex) (January 2004)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB2005/003422

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4848471	A	CA 1278493 C	02-01-1991
		DK 397587 A	05-02-1988
		GB 2195606 A	13-04-1988
		NL 8701815 A	01-03-1988
		NO 863130 A	05-02-1988
<hr/>			
EP 0568742	A	10-11-1993 CA 2095764 A1	09-11-1993
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PATENT COOPERATION TREATY

REC'D 25 JAN 2006

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From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/GB2005/003422

International filing date (day/month/year)
07.09.2005

Priority date (day/month/year)
08.09.2004

International Patent Classification (IPC) or both national classification and IPC
F04B47/08, F04B9/10, E21B43/12, E21B43/01

Applicant
DES ENHANCED RECOVERY LIMITED

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/GB2005/003422

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

Box No. II Priority

1. ☒ The validity of the priority claim has not been considered because the International Searching Authority does not have in its possession a copy of the earlier application whose priority has been claimed or, where required, a translation of that earlier application. This opinion has nevertheless been established on the assumption that the relevant date (Rules 43bis.1 and 64.1) is the claimed priority date.
2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43bis.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.
3. Additional observations, if necessary:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

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**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or
industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	1-32
Inventive step (IS)	Yes: Claims	
	No: Claims	1-32
Industrial applicability (IA)	Yes: Claims	1-32
	No: Claims	

2. Citations and explanations

see separate sheet

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

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Re Item V.

1 Reference is made to the following documents:

D1 : DATABASE WPI, Section Ch, Week 198811, Derwent Publications Ltd.,
London, GB; Class H01, page 11, AN 1988-075714 XP002356100
NORDGREN A.: "under water pump for sea bed well" -&; SE 8 602 652 L (AB
ASEA-ATOM) 14 December 1987 (1987-12-14)

D2 : FR 2 710 946 A (INSTITUT FRANCAIS PETROLE) 14 April 1995 (1995-04-14)

D3 : WO 90/08897 A (SINVENT AS) 9 August 1990 (1990-08-09)

2 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is not new in the sense of Article 33(2) PCT.

2.1 Document D1 discloses a wellbore-external underwater pumping system for pumping process fluid into or out of a wellbore, the underwater pumping system comprising: a piston and cylinder assembly for pumping process fluid, the piston and cylinder assembly comprising at least one piston and at least one cylinder, the piston being driveable by a drive fluid.

2.2 The same reasoning applies, mutatis mutandis, to the subject-matter of the corresponding independent claims 18 and 19, which therefore is also considered not new.

3. The combination of document D2 which discloses a wellbore-external underwater pumping system for pumping process fluid into or out of a wellbore, the pumping system being driveable by a drive fluid; and document D3 which discloses a well fluid pumping system comprising a piston and cylinder assembly, renders the subject matter of claims 1-32 obvious.

3.1 The present application does not meet the criteria of Article 33(2) PCT, because the subject matter of claim 1-32 does not involve an inventive step in the sense of Article 33(3)PCT.